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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/916,629	08/22/1997	CHAD A. COBBLEY	97-0098	3496

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EXAMINER

GALLAGHER, JOHN J

ART UNIT	PAPER NUMBER
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1733

28

DATE MAILED: 11/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/916629

Applicant(s)

Examiner

Group Art Unit

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-22 and 40-44 is/are pending in the application.
- ☐ Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☐ Claim(s) _____ is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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1. The Terminal Disclaimer filed 27 September 2002 has been deemed proper and acceptable, and therefore is effective to overcome the obviousness-type double patenting rejection made in this application (i.e. see paragraphs 8-9 of Paper No. 20).

2. Applicants' (Preliminary) Amendment, filed 23 September 2002, has been received and made of record.

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5, 12-20 and 42-43 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Di Leo et al. in view of either Nishino et al. or Litke (all already of record).

Di Leo et al. disclose that it is known to bond/adhere a semiconductor chip/element/device to a lead frame utilizing a room temperature curable (epoxy) adhesive, which (a) element and lead frame are also electrically (inter)connected by conductor/wire bonding; and (b) bonded composite is resin encapsulated (as is conventional). (Figs. 2-4, Abstract, column 1 lines 7-11 and N.B. lines 28-29, column 2 lines 1-14 and 38-56,

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column 3 lines 3-37 and N.B. lines 34-37, N.B. column 3 lines 51-56, N.B. column 4 lines 1-2 and 9-11).

Nishino et al. (Abstract, column 1 lines 8-14, column 2 line 60 thru column 3 line 29) and Litke (Abstract, column 1 lines 11-34, column 3 lines 18-22 and 50-54) both disclose that it is known to incorporate a silica (i.e. insulating) filler in a cyanoacrylate adhesive for various (and beneficial) effects (e.g. thixotropy), such that it would have been obvious to one of ordinary skill in this art to employ such filled adhesives in the bonding process of Di Leo et al. in place of the corresponding, analogous adhesive employed therein; mere substitution of one known room temperature curing adhesive for another involved. The former/first named patentees also further disclose that ~~cyanoacrylate monomers the former first named secondary patentees also further disclose that~~ cyanoacrylate monomers (a) are widely/generally used as instantaneous adhesives for a variety of substrates (e.g. metals, glasses etc.); and (b) cure in a short period of time at room temperature (i.e. without heat); and (c) are initiated to polymerize by water or basic substances either present on (i.e. as/from humidity) or applied to the substrate surfaces to be bonded, while both Nishino et al. and Litke fairly disclose and document the (known and conventional) incorporation of a filler material in a cyanoacrylate adhesive for a beneficial function/result, which foregoing is (seen to be) in agreement

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with applicants' specification at page 4 lines 23-29, wherein the "tailoring" envisioned by applicants is clearly indicated/disclosed as constituting a benefit/beneficial result in the form of an improvement.

5. Claims 1-5, 12-20 and 42-43 are further rejected under 35 U.S.C. § 103(a) as being unpatentable over Di Leo et al. in view of Mikuni et al. (also already of record) and further in view of either Nishino et al. or Litke.

Mikuni et al. disclose most similar to Nishino et al. (as set forth above) with respect to everything EXCEPT the presence of a filler component. (N.B. column 1 lines 9-16 and 29-30). It would have been obvious to one of ordinary skill in this art to employ/incorporate the silica filler of either Nishino et al. or Litke in the adhesive of Mikuni et al. for use in the process of Di Leo et al.; mere incorporation of a known (and beneficial) material/ingredient in a known adhesive involved.

6. Claims 6-11, 42 and 44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Grigg et al. in view of Hiraiwa et al. (both newly applied) and further in view of Di Leo et al. and Mikuni et al.

Grigg et al. disclose a process of the type and most similar to that of Di Leo et al., to wit, one in which a semiconductor chip or element or device is bonded or adhered to a

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lead frame utilizing a room temperature curable adhesive, which element and frame are also electrically (inter)connected by conductive or wire bonding. (Abstract, column 1 lines 7-25, column 2 lines 30-39 and 51-63, column 4 line 66 thru column 5 line 17). Further regarding this reference, it is noted that there is no requirement that the adhesive employed therein be unfilled i.e. free of filler (provision being made for the presence of a metallic filler therein), nor are any other materials (inert additives or otherwise) apparently precluded from inclusion therein.

Hiraiwa et al. disclose that it is known to incorporate an electro and/or heat conductive e.g. metal (powder) filler in a cyanoacrylate (monomer) composition which finds utility as a (general purpose) instant curing adhesive. (Abstract, column 1 lines 9-18, column 2 line 55 thru column 3 line 30 to column 3 lines 60-68 (and N.B. line 68), N.B. column 10 lines 28-31, Example 6, column 12 lines 52-54, Example 14 in Table 2).

Di Leo et al. disclose (again, N.B. column 3 line 51 to column 4 line 2) that it is conventional to resin encapsulate a bonded semiconductor element/lead frame composite or assembly, while Mikuni et al. disclose (again, N.B. column 1 lines 9-16 and 29-30) that cyanoacrylate compositions are employed as adhesives in the assembly of electric and electronic parts. It would have been obvious to one of ordinary skill in this art to employ the

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(a) metal filled cyanoacrylate adhesive of Hiraiwa et al. in the bonding process of Grigg et al. in place of the corresponding, analogous adhesive employed therein, mere substitution of one known room temperature adhesive for another being involved, especially in view of the fair and clear teaching of Mikuni et al. along this line; and (b) conventional resin encapsulation technique of Di Leo et al. in/in conjunction with the bonding process of Grigg et al., mere use of a known and standard technique being involved.

7. The foregoing art rejections of paragraphs 4-6 are repeated, with the addition of O'Sullivan et al. as a secondary reference to the statement of each.

O'Sullivan et al. disclose that cyanoacrylate adhesives (i.e. of the type shown in Mikuni et al., Nishino et al. and Litke) are known to cure in less than a/1 minute and in many cases in a matter of seconds. (N.B. column 1 lines 25-44). This reference is applied specifically and primarily for the sake of exposition and completeness, its teaching along the foregoing line being seen to be implicitly encompassed within that of the other three references referred to above.

8. Claims 21-22, 40-42 and 44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Grigg et al. in view of Burnett et al. (also already of record), Gruber et al. (also

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already of record), Di Leo et al. and Lamanna et al. (newly applied).

Burnett et al. disclose that anaerobic curing acrylate/acrylic monomers are known to (a) polymerize rapidly at room temperature (i.e. without heat); and (b) find utility as adhesives in the bonding of various (e.g. electrical) substrates (N.B. column 1 lines 38-42, column 3 lines 47-58, column 5 lines 4-26, column 18 lines 34-38, column 19 lines 15-24 and 54-75, column 20 lines 1-16).

Gruber et al. disclose that MONO acrylate esters may be formulated into anaerobic adhesives (i.e. adhesive compositions) and further that it is known to incorporate an (e.g. silica) filler in such an acrylate based anaerobic adhesive. (Column 1 lines 7-15, N.B. column 4 lines 15-22).

Lamanna et al. disclose that it is known to incorporate a particulate metal (e.g. Hg, Fe, Ni etc.) filler in a MONO acrylate ester composition. (Column 1 lines 7-9, N.B. column 3 line 19 thru column 4 line 9). It would have been obvious to one of ordinary skill in this art to (a) incorporate such a conventional, documented particulate metal filler ingredient/component in the adhesive of Burnett et al. for use in the bonding process of Grigg et al. in place of the corresponding, analogous adhesive employed therein, mere substitution of one known room temperature curable adhesive for


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another being involved, especially in view of the fair and clear teaching of Gruber et al. along this line; and (b) employ the conventional resin encapsulation technique of Di Leo et al. in/in conjunction with the bonding process of Grigg et al., mere utilization of a known and standard technique being involved.

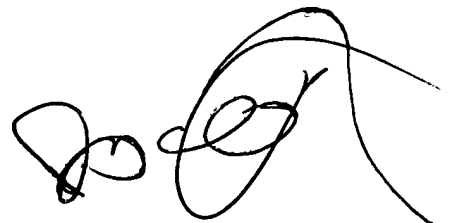
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. J. Gallagher whose telephone number is (703) 308-1971. The examiner can normally be reached on M-F from approximately 8:30 A.M. to 5 P.M. The examiner can also be reached on alternate N/A.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball, can be reached on (703) 308-2058. The fax phone number for this Group is (703) ⁸⁷⁶⁻⁹³¹⁰ ~~305-3599~~.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661/0662.


JJGallagher:cdc

October 25, 2002



JOHN J. GALLAGHER
PRIMARY EXAMINER
ART UNIT 181/733